INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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COUNTRY Hungary/USSR

REPORT

SUBJECT Precision Mechanics Institute, Budapest and Kőbánya

DATE DISTR. 28 March 1957

NO. PAGES 1

REQUIREMENT NO. RD

REFERENCES

DATE OF INFO.

PLACE & DATE ACQ.

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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

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reports on the Precision Mechanics Institute. The reports contain mainly information on the location, the departmental organization, the production and research work (antiaircraft and other radar types, mine detectors, high-frequency tubes, etc.)

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[redacted]

HUNGARY

Economic/Air/Military

Radar Production at FINOM MEKANIKAI VALLALAT, KOBANYA

1. In February 1956 a meeting was held in the Hungarian Air Force H.Q. to discuss questions of radar production.

2. This meeting was arranged mainly [redacted] 25X1

[redacted] to discuss the relative financial and production priorities to be allocated to the Russian PUAZO predictor which was being manufactured at the FINOM MEKANIKAI VALLALAT, KOBANYA, and a new radar prototype being developed by the main GAMA factory at FEHERVARI Ut, BUDAPEST.

3. Major KIC maintained very forcefully that the PUAZO equipment was cumbersome and outdated and that in any case the FINOM MEKANIKAI VALLALAT, KOBANYA had not yet begun to produce it in sufficient quantities to be of practical use. He strongly recommended that funds and materials earmarked for the PUAZO should be made available to GAMA for further research and development.

4. No decision was reached at this meeting nor is it known what eventual decision if any was reached. It is known, however, that only a very few PUAZO predictors were ever produced.

5. At the same meeting tentative agreement was reached that repairs to the MIG 17 PF radar should be carried out by the FINOM MEKANIKAI VALLALAT, KOBANYA, and not at the main GAMA works.

[redacted]

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HUNGARY.
Economic/Scientific/Military/Air.
The FINE MECHANICS INSTITUTE, BUDAPEST.

2. Organisation.

this Institute was part of the GANZ Works, whose main site was at FEHERVARI UTCA, 83 or 85. 25X1

3. Radar Types and Production.

(a) "DUNA" (="CROSSFORK"). No longer in production. Operated at 290 Mc/s.

(b) "SON 1V" (Russian name). 10 cm. F.C. radar. Production at the Institute was from Russian blueprints which in turn were indistinguishable from those of the S.C.R. 584. 25X1

16 sets of this equipment had been produced by April, 1956. 6 had been completed by December, 1955 and by April 1956 10 further had been completed and final alignment, inspection etc. carried out; they were then still at the works awaiting final documentation prior to issue to the Hungarian Forces. The lock-follow of this equipment was planned to be effective to ranges up to 54 Km. On the average most sets were effective to about 45 Kms. but some were rather better and tested up to 60Km.

(c) "SON 1X" (Russian name). Virtually indistinguishable from the "SON 1V" which it was designed to replace. The physically distinguishing features are the smaller trailer, weighing 7-8 tons, of the SON 1X; the trailer for the SON1V weighing 12 tons. Owing to this smaller size the antenna of the SON 1X was not capable of being lowered into the trailer as could the antenna of the SON 1V. In performance the difference between the two was that although provided with lock-follow the SON 1V still required an operator to keep it on the target while the SON 1X was fully automatic. Most of the components in production at the Institute for the SON 1V will be used for the SON 1X.

4. No production of the SON 1X had been completed by April, 1956 a single Russian built model were held by the Institute and it had been planned to 25X1

/over.....

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produce the first Hungarian-made prototype by June, 1956, but work was badly behind schedule in April.

5. High Frequency Tubes.

(a) Magnetrons. [redacted] 25X1

[redacted] The magnetrons were made by TUNGSRAM and were for use in the SON 1V and, later, for the SON 1X. The nominal peak power of those for the SON 1V was 300 Kw. [redacted] 25X1

[redacted] A number of these tested [redacted] were too far off frequency for use in the SON 1V 25X1 and were passed on to teaching establishments.

(b) Klystrons and Reflex-Klystrons. A few had been made at the Institute to meet special requirements, [redacted] 25X1

[redacted] The glass envelopes were produced by TUNGSRAM. The [redacted] klystron [redacted] 25X1 [redacted] produced 1 mw. and was for use in signal generators. [redacted] The reflex-klystrons [redacted] were designed for two frequencies - 2,660 and 2,990 Mc/s. Power was 80-120 mw. 25X1

6. Staff.

[redacted] the total staff at the Institute numbered about 1,300 persons. 25X1

7. Future projects.

[redacted] there were vague plans to produce in the future 3 cm, and 1 cm. radar [redacted] 25X1 25X1

[redacted] 25X1

[redacted] 25X1

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HUNGARY

MILITARY/ECONOMIC/SCIENTIFIC

F.M.V.

Finom Mechanikai Vallalat, BUDAPEST
(1951 - 1956)

1. General

(a) Founded in 1951 and given the number 6055, this precision and mechanical factory was at first located on the premises of Gamma Optical and Precision Works in BUDAPEST. In 1952, having grown in size, it was moved to a new location, a rebuilt factory in BUDAPEST X, Feher ut, 10, where in 1953 the plant designation was changed to Finom Mechanikai Vallalat.

(b) As the factory was mainly engaged in the manufacture of war material for the Hungarian Army it came under the Ministry of War Industry. In addition to its staff of civilian engineers and technicians it had therefore about ten Hungarian technical army experts

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Moreover, there were also three, sometimes four, Russian engineers as technical advisers

who circulated in all parts of the factory. In their advisory capacity they were concerned not only with F.M.V. but also with the Research Institute for Telecommunications in BUDAPEST, known as T.K½I.

(c) Although defined as a war plant the factory's production was not limited to the supply of military equipment. Utilizing existing production capacity and also as an economic gesture, a range of items was manufactured for the civilian sector at home and abroad.

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(d) This combination of war and peace production led to the application of strict security measures which caused decentralization, with the result that employees whether engineers, technicians

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/er ...

or workers knew little more than was necessary to carry out the tasks assigned to them

2. Structure of F.M.V.

For rough structure of F.M.V. see appendix.

[redacted]

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4. Production - Military Sector

(a) Hungarian Anti-Aircraft Radar T 1

Work on this equipment started before 1951 at the Gamma Optical and Precision Works and was later passed to F.M.V. It was an anti-aircraft radar set of Hungarian design based on the American type SCR, with a range of 30 km and a wavelength of 10 cm., equipped with an aluminium alloy antenna of parabolic shape. The set was lighter in weight than 'DRAVA' which was produced later. By the summer of 1952 nine sets of T 1 had been produced and were handed over to the Hungarian army for training. Minor difficulties with the sets were constantly encountered owing to failures of small electrical parts such as condensors and resistances.

(b) Hungarian Anti-Aircraft Radar T 22

This set was an improvement of the T 1. It had a range of 30 km and a wavelength of 10 cm. Only one set was made before work on the 'DUNA' equipment started in 1953.

(c) Russian Short ..

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(c) Russian Short Range Radar

Based on Russian documentation, translated by T.K.I., this equipment called 'DUNA' went into production after two prototypes had been made in 1953-54. The set had a wavelength of 1 m and was originally designed for a range of 90-100 km which, however, was increased to 130 km when a better tube supplied by the former General Electric Bulb Factory in BUDAPEST was installed. 25X1

The equipment was powered by a 25 HP petrol motor, and a generator producing AC and DC current of 3 to 4 kw. At first the whole of the East Bloc was to be supplied with 'DUNA' radar. In the end only about 100 sets were made by 1955, of which some 60 went to the Hungarian army, whilst 40 remained unassembled for spares and replacements.

(d) Russian Anti-Aircraft Radar

This set, known at F.M.V. as 'DRAVA' was built according to Russian documentation. It was very similar to the American type SCR, had a range of 30km and a wavelength of 10 cm and was extremely heavy in weight. The set had a parabolic antenna for automatic or manual service. It was powered by a 65 HP Diesel (CZEPEL) motor, with an AC and DC generator of 33/35 kw. Work began about 1954 when the 'DUNA' programme was not yet finished, and by January 1955 one prototype had been built, followed by another one by March 1955. When these were finished a Russian-made set was shown to F.M.V. by the Hungarian army. 35 'DRAVA' sets were to have been built by 31st March 1957, but only ten were produced when the revolution broke out at the end of October 1956.

(e) .....

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(e) Russian Anti-Aircraft Radar

This equipment, known at F.M.V. as 'IPOLY' was a modernized version of 'DRAVA'. It was very much lighter in weight than 'DRAVA'. The set was to have been built on Russian documentation, and one protogtype had been made by T.K.I. Early in 1956 Russian documentation translated into Hungarian was received, and by 1st January 1957 two sets were to have been finished. At the outbreak of the revolution only a few parts had been made.

(f) Mine Detectors

In 1952 work started on improving a type of mine detector believed to have been made by an ordnance factory in Hungary. It was an equipment consisting of rucksack, headphones and rectangular sweeping frame attached to the handle. A whistling sound was heard when sweeping frame was held over a metallic object. Several hundreds of this type of mine detector were made by F.M.V.

5. Production - Civilian Sector

(a) Main lines for the home market but especially for export were small synchronous motors, of which large quantities were sent to the U.S.S.R. having been manufactured according to Russian specifications. Accurate wavelength measuring instruments, type 'slotted line' were exported as well as klystrons, resolvers, magnetrons, box resonators and resistances. Shortly before the outbreak of the revolution success had been achieved at F.M.V. in the manufacture of precision resistances (helipods), and great hopes had been entertained for sizeable exports. Electric fans were sold for a number of years, and the production of electric shaving sets had also been started with negative results.

(b) The above goods were marketed under the trade name "ORION', and for their sale large quantities of illustrations and catalogues giving technical data were available in several languages.

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(c) Another equipment, allegedly designed for the civilian sector, was a navigational radar set which had not yet passed the experimental stage. Starting in 1955 and using parts from T 1 and T 22 Hungarian Anti-Aircraft Radar, Laszlo BOYAKI in co-operation with engineers from T.K.I. made a ship's radar with a range of about 10 km. Tests were carried out on Lake BALATON. BOYAKI took photographs of the P.P.I., then cut out and placed together the clearest parts of his photographs, thus mapping the surrounding area of Lake BALATON. Pleased with his apparent success he displayed the composite picture on the wall of his office.

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(b) In September 1956

Victor BIRO, VAAR f.n.u. and Capt. BERECKI f.n.u. went to the U.S.S.R. to obtain further documentation on the 'IPOLY' anti-aircraft radar. They were still there when the Hungarian revolution broke out, and ultimately returned empty-handed, having been told by the Russians that they were not yet ready with the documentation on elimination of interference to transmitters to put the equipment into large scale production.

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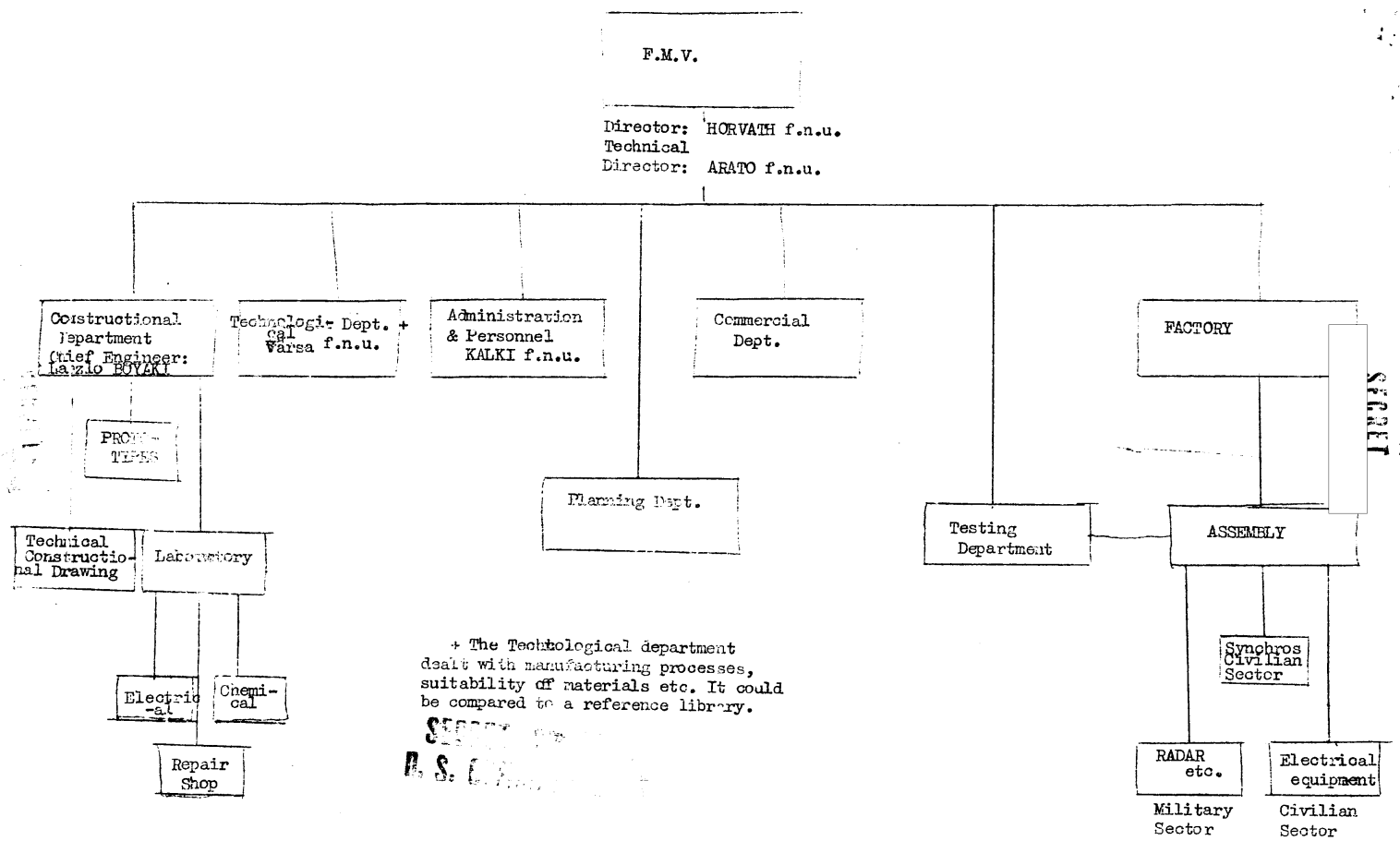

+ The Technological department dealt with manufacturing processes, suitability of materials etc. It could be compared to a reference library.

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